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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/770,358	01/25/2001	Ashish Thusoo	256/295	7894

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EXAMINER	
TO, BAOQUOC N	

ART UNIT	PAPER NUMBER
2162	

DATE MAILED: 11/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/770,358	THUSOO ET AL.	
	Examiner	Art Unit	
	Baoquoc N To	2162	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 July 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-32* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-32* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1, 5, 9, 13, 1 7, 21, 25 and 29 are amended in the amendment filed on 07/12/2004. Claims 1-32 are pending in this application.

Response to Arguments

2. Applicant's arguments with respect to claims 1, 5, 9, 13, 1 7, 21, 25 and 29 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cochrane et al. (US. Patent No. 6,581,205) in view of Colby et al. (US. Patent No. 6,735,587).

Regarding on claims 1 and 17, Cochrane teaches a method for applying a row from a source table to a destination table, the method comprising

Selecting first column from a source table (column A) (col. 6, lines 65-67);

Selecting a second column from a destination table (MV) (col. 6, lines 65-67);

Performing an outer join (outer join) operation on the source table and the destination table using the first and second columns (col. 7, lines 1-6);

Cochrane does not explicitly teach updating each row in the destination table with a row from the result of the outer join operation containing a matching element in

the first and second columns; and inserting into the destination table each row from the result set of the outer join operation with a non-matching element in the first and second columns, the method performing no more than one scan per table. Cochrane teaches, "to determine an insert or update is required, a DELTA-T table may be recreated containing two rows; one to delete group A2 and the other to insert/update group A3" (col. 5, lines 57-60). In addition, Cochrane teaches "insert returns any non-matching groups, whereas the second operation, the update, return all matching groups. These two operations can be combine together into an outer join, which return both matching and non-matching group" (col. 6, lines 22-67). This teaches the results of the outer-join operations are the updating all matching and inserting any non-matching. On the other hand, Colby teaches "FIG. 2, shows another method in accordance with the invention for incrementally maintaining a pre-computed aggregate view that is self-maintainable. The system receives the pre-computed aggregate view v that is self-maintainable, including its view definition Vd and materialized aggregate table MV (step 202). The system also receives changes to a based table of the pre-computed aggregated view, the changes being represented as deletions and insertion (step 204). The system tags insertion and deletions with distinguishing literals and combines them to produces δF (deltaF)(step 206). The system produces aggregate change set δ G (delta G) (step 208). The system matches row from δ G with rows in MV and produces δJ (delta J), which contains all rows from δ G with matched rows tagged with information from corresponding rows in MV and further contains non-matching rows from δ G tagged as

non-matching (step 210). (Matched rows are row that have corresponding rows and non-matching rows is to insert Null values in MV columns. The system produces $\delta J'$ (delta J') by selecting from δJ rows identified as either: (i) matched rows or (ii) identified as non-matching but resulting from more based tables changes that are insertion than deletion for the aggregated group represented by the row (step 212). The system inserts the new row into MV, the new rows being constructed from rows (in $\delta J'$) identified as non-matching row (step 214). The system removes from MV rows matching rows in δI (delta I) (also step 214). The system deletes from MV rows matching rows in δI, each row representing an aggregated group that has as many base table deletion as the sum of the number of base table rows for that group as stored in MV (step 216)" (col. 7, lines 62-67 to col. 8, lines 1-30). This teaches the recited method of one scan per table. Therefore, it would have been obvious to one ordinary skill in the art at the time of the invention was made to modify Cochrane's system to include the join process including inserting and deleting within on single query statement in order to enhance the system performance.

Regarding on claims 2 and 18, Cochrane teaches the combining the rows in the source table that the first column has unique element in each row (col. 5, lines 50-67).

Regarding on claims 3 and 19, Cochrane teaches the combining step further comprises:

Sorting the rows in the source table based on the element in the first column (col. 5, lines 55-67; and

Creating a groups of rows, wherein each row in the group of rows contains a matching element in the first column (col. 5, lines 55-67);

Combining the group of rows into a single row (col. 5, lines 55-67).

Regarding on claims 4 and 20, Cochrane teaches the outer join operation uses an equal comparison operator for a comparison statement (col. 5, lines 55-67).

Regarding on claims 5 and 21, Cochrane teaches a statement to insert a new row or update an existing row in database table, the statement implementing a process comprising the steps of:

Selecting from a source table a first column comprising a plurality of elements (column A) (col. 6, lines 65-67);

Selecting from a destination table a second column comprising a plurality of elements (MV) (col. 6, lines 65-67);

Determining a set of matching rows based upon the success of a comparison operation on an element in the first column and an element in the second column (col. 5, lines 64-67 to col. 6, lines 1-8);

Determining a set of non-matching rows based upon the failure of a comparison operation on the first column element and the second column element (col. 5, lines 64-67 to col. 6, lines 1-8);

Cochrane does not explicitly teach updating the destination table with the set of matching rows; and inserting into the destination table the set of non-matching rows, the statement comprising a single query language statement. Cochrane teaches, "to determine an insert or update is required, a DELTA-T table may be recreated containing

two rows; one to delete group A2 and the other to insert/update group A3" (col. 5, lines 57-60). In addition, Cochrane teaches "insert returns any non-matching groups, whereas the second operation, the update, return all matching groups. These two operations can be combine together into an outer join, which return both matching and non-matching group" (col. 6, lines 22-67). This teaches the results of the outer-join operations are the updating all matching and inserting any non-matching. On the other hand, Colby teaches "FIG. 2, shows another method in accordance with the invention for incrementally maintaining a pre-computed aggregate view that is self-maintainable. The system receives the pre-computed aggregate view v that is self-maintainable, including its view definition Vd and materialized aggregate table MV (step 202). The system also receives changes to a based table of the pre-computed aggregated view, the changes being represented as deletions and insertion (step 204). The system tags insertion and deletions with distinguishing literals and combines them to produces δF (deltaF)(step 206). The system produces aggregate change set δ G (delta G) (step 208). The system matches row from δ G with rows in MV and produces δJ (delta J), which contains all rows from δ G with matched rows tagged with information from corresponding rows in MV and further contains non-matching rows from δ G tagged as non-matching (step 210). (Matched rows are row that have corresponding rows and non-matching rows is to insert Null values in MV columns. The system produces δJ ' (delta J') by selecting from δJ rows identified as either: (i) matched rows or (ii) identified as non-matching but resulting from more based tables changes that are

insertion than deletion for the aggregated group represented by the row (step 212). The system inserts the new row into MV, the new rows being constructed from rows (in δ J ') identified as non-matching row (step 214). The system removes from MV rows matching rows in δ I (delta I) (also step 214). The system deletes from MV rows matching rows in δ I , each row representing an aggregated group that has as many base table deletion as the sum of the number of base table rows for that group as stored in MV (step 216)" (col. 7, lines 62-67 to col. 8, lines 1-30). This teaches the recited method of one scan per table. Therefore, it would have been obvious to one ordinary skill in the art at the time of the invention was made to modify Cochrane's system to include the join process including inserting and deleting within on single query statement in order to enhance the system performance.

Regarding on claims 6 and 22, Cochrane teaches combining the rows in the source table, wherein the resulting source table has a unique element in each row of the first column (col. 5, lines 50-67).

Regarding on claims 7 and 23, Cochrane teaches the combining step further comprises:

Sorting the rows in the source table based on the element in the first column (col. 5, lines 50-67); and

Creating a group of rows, wherein each row in the group of rows contains a matching element in the first column (col. 5, lines 50-67);

Combining the group of rows into a single row (col. 5, lines 50-67).

Regarding on claims 8 and 24, Cochrane teaches the comparison operation uses an equal comparison operator (col. 5, lines 50-67).

Regarding on claims 9 and 25, Cochrane teaches a method for upserting a source table with a destination table, the method comprising:

Selecting from a source table a first column comprising a plurality of elements (column A) (col. 6, lines 65-67);

Selecting from a destination table a second column comprising a plurality of elements (MV) (col. 6, lines 65-67);

Cochrane does not explicitly teach updating a row in the destination table with a row from the source table upon the success of a comparison operation on an element in the first column of the row from the source table and an element in the second column of the row from the destination table; and inserting a row from the source table into the destination table upon the failure of a comparison operation on an element in the first column of the row from the source table and an element in the second column of the row from the destination table. Cochrane teaches, "to determine an insert or update is required, a DELTA-T table may be recreated containing two rows; one to delete group A2 and the other to insert/update group A3" (col. 5, lines 57-60). In addition, Cochrane teaches "insert returns any non-matching groups, whereas the second operation, the update, return all matching groups. These two operations can be combine together into an outer join, which return both matching and non-matching group" (col. 6, lines 22-67). This teaches the results of the outer-join operations are the updating all matching (success) and inserting any non-matching (failure). On the other hand, Colby teaches

"FIG. 2, shows another method in accordance with the invention for incrementally maintaining a pre-computed aggregate view that is self-maintainable. The system receives the pre-computed aggregate view v that is self-maintainable, including its view definition Vd and materialized aggregate table MV (step 202). The system also receives changes to a based table of the pre-computed aggregated view, the changes being represented as deletions and insertion (step 204). The system tags insertion and deletions with distinguishing literals and combines them to produces δF (deltaF)(step 206). The system produces aggregate change set δ G (delta G) (step 208). The system matches row from δ G with rows in MV and produces δJ (delta J), which contains all rows from δ G with matched rows tagged with information from corresponding rows in MV and further contains non-matching rows from δ G tagged as non-matching (step 210). (Matched rows are row that have corresponding rows and non-matching rows is to insert Null values in MV columns. The system produces δJ' (delta J') by selecting from δJ rows identified as either: (i) matched rows or (ii) identified as non-matching but resulting from more based tables changes that are insertion than deletion for the aggregated group represented by the row (step 212). The system inserts the new row into MV, the new rows being constructed from rows (in δJ') identified as non-matching row (step 214). The system removes from MV rows matching rows in δ I (delta I) (also step 214). The system deletes from MV rows matching rows in δ I , each row representing an aggregated group that has as many

base table deletion as the sum of the number of base table rows for that group as stored in MV (step 216)" (col. 7, lines 62-67 to col. 8, lines 1-30). This teaches the recited method of one scan per table. Therefore, it would have been obvious to one ordinary skill in the art at the time of the invention was made to modify Cochrane's system to include the join process including inserting and deleting within on single query statement in order to enhance the system performance.

Regarding on claims 10 and 26, Cochrane teaches combining the rows in the source table, wherein the resulting source table has a unique element in each row of the first column (col. 5, lines 55-67).

Regarding on claims 11 and 27, Cochrane teaches the combining the step further comprises:

Sorting the rows in the source table based on the element in the first column (col. 5, lines 55-67); and

Creating a group of rows, wherein each row in the group of rows contains a matching element in the first column (col. 5, lines 55-67);

Combining the group of rows into a single row (col. 5, lines 55-67).

Regarding on claims 12 and 28, Cochrane teaches the comparison operation uses an equal comparison operator (col. 5, lines 55-67).

Regarding on claims 13 and 29, Cochrane teaches a computer implemented method for aggregating data in a database, comprising:

Parsing from a single command line, a command, a source table (column A), a destination table (MV), a source key, and a destination key (col. 6, lines 65-67);

Comparing the source key in each row of the source table with the destination key in each row of the destination table (col. 5, lines 64-67 to col. 6, lines 1-8);

Determining a set of update rows based upon the success of a comparison operation performed on the source key and the destination key (col. 5, lines 64-67 to col. 6, lines 1-8);

Determining a set of insert rows based upon the failure of a comparison operation performed on the source key and the destination key (record of rows) col. 5, lines 64-67 to col. 6, lines 1-8);

Cochrane does not explicitly teach updating the destination table with the set of update row; inserting into the destination table with the set of insert rows and all in one single command line. Cochrane teaches, "to determine an insert or update is required, a DELTA-T table may be recreated containing two rows; one to delete group A2 and the other to insert/update group A3" (col. 5, lines 57-60). In addition, Cochrane teaches "insert returns any non-matching groups, whereas the second operation, the update, return all matching groups. These two operations can be combine together into an outer join, which return both matching and non-matching group" (col. 6, lines 22-67). This teaches the results from the comparison process are the updating all matching and inserting any non-matching. On the other hang, Colby teaches "FIG. 2, shows another method in accordance with the invention for incrementally maintaining a pre-computed aggregate view that is self-maintainable. The system receives the pre-computed aggregate view v that is self-maintainable, including its view definition Vd and materialized aggregate table MV (step 202). The system also receives changes to a

based table of the pre-computed aggregated view, the changes being represented as deletions and insertion (step 204). The system tags insertion and deletions with distinguishing literals and combines them to produces δF (deltaF)(step 206). The system produces aggregate change set δ G (delta G) (step 208). The system matches row from δ G with rows in MV and produces δJ (delta J), which contains all rows from δ G with matched rows tagged with information from corresponding rows in MV and further contains non-matching rows from δ G tagged as non-matching (step 210). (Matched rows are row that have corresponding rows and non-matching rows is to insert Null values in MV columns. The system produces δJ ' (delta J') by selecting from δJ rows identified as either: (i) matched rows or (ii) identified as non-matching but resulting from more based tables changes that are insertion than deletion for the aggregated group represented by the row (step 212). The system inserts the new row into MV, the new rows being constructed from rows (in δJ ') identified as non-matching row (step 214). The system removes from MV rows matching rows in δ I (delta I) (also step 214). The system deletes from MV rows matching rows in δ I , each row representing an aggregated group that has as many base table deletion as the sum of the number of base table rows for that group as stored in MV (step 216)" (col. 7, lines 62-67 to col. 8, lines 1-30). This teaches the recited method of one scan per table. Therefore, it would have been obvious to one ordinary skill in the art at the time of the invention was made to modify Cochrane's system to include the join process including

inserting and deleting within on single query statement in order to enhance the system performance.

Regarding on claims 14 and 30, Cochrane teaches combining the rows in the source table, wherein the resulting source table has a unique source key in each row of the source table (col. 5, lines 55-67).

Regarding on claims 15 and 31, Cochrane teaches sorting the rows in the source table based on the source key (col. 5, lines 55-67); and

Creating a group of rows, wherein each row in the group of rows contain a matching element in the source key (col. 5, lines 55-67);

Combining the group of rows into a single row (col. 5, lines 55-67).

Regarding on claims 16 and 32, Cochrane teaches the comparison operation uses an equal comparison operator (col. 5, lines 55-67).

Conclusion

4. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Contact Information

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Baoquoc N. To whose telephone number is at 571-272-4041 or via e-mail BaoquocN.To@uspto.gov. The examiner can normally be reached on Monday-Friday: 8:00 AM – 4:30 PM, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Breene can be reached at 571-272-4107.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks
Washington, D.C. 20231.

The fax numbers for the organization where this application or proceeding is assigned are as follow:

(703) 872-9306 [Official Communication]

Hand-delivered responses should be brought to:

Crystal Park II
2121 Crystal Drive
Arlington, VA 22202
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Baoquoc N. To
Oct 27, 2004

JEAN M. CORRIELUS
PRIMARY EXAMINER